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Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files

DATE: 27 March 1958

FROM :

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SUBJECT: Contract RD-122, AS-3 -

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1. General - A visit was made to [] on 12 March 1958 to monitor the subject contract. Present for discussions were:

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OC

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2. Background - The initial prototype was scheduled for delivery in November 1957. The contractor was slow in getting started and more recently has encountered engineering difficulties in system packaging. Immediately prior to this visit, the contracting officer received a letter from [] seeking a time extension for development of the initial prototype from 16 months to 24 months, with initial delivery (for evaluation) to be 1 July 1958.

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3. Delivery - As a result of this visit, and acknowledging the slow but high quality of design and reliability [] is attempting, recommendations have been made that the July delivery be accepted. Additional funds are not involved at the present time. The project is currently well staffed and additional time is needed for system package "debugging", which was not anticipated by []

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4. Conferences - Inasmuch as the equipment was not ready for a "system demonstration," as anticipated, principal discussions concerned hardware packaging for operational functional improvement.

5. Equipment Weight - The specifications require that AS-3 packaging with one power supply shall not exceed 25 lbs. The components were weighed with the following results:

DOC 13 REV DATE 19 MAR 1958 BY 064540
 ORIG COMP 033 OPI 56 TYPE 02
 ORIG CLASS 5 PAGES 3 REV CLASS C
 JUST 22 NEXT REV 2010 AUTH: MR 70-2

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	lbs.	oz.
Battery Pack	5.	5.
Power Supply	14	0
Transmitter	6	11
Printer (GFE)	2	8
Coder and Cartridge		15
Battery charger	2.	

The AS-3 with NiCd battery pack, less receiver, weighs 17 lbs., and 7 ozs. The AS-3 with AC power pack, less receiver, weighs 23 lbs., 15 ozs. (The RR/D-11 receiver ~~is~~ being produced by Philco for AS-3 compatibility will weigh approximately 3 lbs.).

6. Design Improvement - This visit was beneficial because on-the-spot decisions and concurrences were made between O+T, OC-E, and the contractor for affecting functional packaging improvements as follows:

- a. Battery Pack - A decision was made to accept the 3 amphrs cells, although 1 amphrs cells meet the specifications without any reserve capacity. The saving of weight and size were not worth the advantage of the additional capacity. The cells will be provided with 15 lb., pressure seals. Slits will be made on one battery case side for viewing the electrolyte level. The interior of the case will be provided with an alkaline protective coating, probably epoxy. Provisions will be made for metering the battery voltage to determine the state of charge. The use of Zener diodes circuit to expand the meter scale was discussed and considered impracticable.
- b. Battery Charger - Provide a cable plug on the side and a cord storage compartment with door. Place the transformer tap switch on top surface. Investigate replacing neon indicating lamps with a circuit breaker (Neon lamps do not have a uniform firing voltage). Add rubber feet. A ceiling charging voltage of 14.5 volts is satisfactory, and a 250 ma charging rate is adequate and safe for unattended charging.
- c. Coder and Cartridge - Dot, Dash, and Space keys are satisfactory. Provide suitable marking for dot and dash keys, (not English). Cover flap and detent area for cartridge. Test to determine possibility of demagnetizing of magnets in electric field. Cover cartridge spool windows with plexiglass or other transparent material. Close all openings possible. Investigate tape magnetizing in the presence of strong magnetic fields i.e., the power transformer.

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- d. AC Power Supply - Enlarge storage compartment. Improvement by enlarging the tap switch control. Increase number transformer taps from 6 to 8. Improve quality of the over-voltage circuit breaker reset button. Mark by painting red.
- e. Transmitter - Improve oscillator and tank tuning controls. Tentative markings were suggested as the figure "1" for oscillator control, and "2" for the tank and antenna loading controls. Increase the sensitivity of the low range of the peak reading tuning meter. Provide a frequency scale for oscillator tuning. Provide a marking scale for operator's use on tank tuning. Indicate tank tuning direction with figures 3 to 30 separated by a double pointed arrow. Provide better accessibility for the hand key. Provide external keying provision. Improve accessibility of oscillator tube. The sliding contact on the tank coil was discussed at length. The contractor agreed to improve the mechanics of the present coil and contact and submit for laboratory tests. The contractor agreed to re-study the problem of heat dissipation from the 6883 power amplifier in order to provide splash proofness. A re-arrangement of component placement would be considered as a problem. Add a tape erasure provision to the keyer. Provide nylon bushings on antenna and external keying connectors.

7. The contractor agreed to provide connectors for the RR/D-11 receiver and TP-3 printer. An RR/AA-11 receiver was made available to the contractor for voltage regulation compatability requirements.

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